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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,157	03/13/2006	Gilad Almogy	6317P003	7462

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EXAMINER

SAKELARIS, SALLY A

ART UNIT	PAPER NUMBER
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1773

MAIL DATE	DELIVERY MODE
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12/02/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,157	Applicant(s) ALMOGY ET AL.	
	Examiner SALLY A. SAKELARIS	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26-28, 30 and 34-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-28, 30 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

The amendment filed 9/23/2010 has been received and considered for examination.

Claims 29, 31-33, and 37-44 have been cancelled, claims 1-25 are withdrawn and claims 26-28, 30, and 34-36 have been amended and remain pending.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 26-28, 30, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. (US 6271671) in view of Alumot et al. (US 5,699,447).

With regard to claims 26 and 28, in Figure 2 Charles disclose a system for defect localization, comprising:

A stage for supporting and positioning the test structure within the system (i.e., device multi-chip module (10));

means for illuminating the electro-optically active material of the test structure (Fig. 2 (32)) wherein the test structure comprises at least the conductor and electro-optically active material (60, 64, 62) that is positioned such as to provide an indication about the electrical status of the at least one conductor (66);

at least one detector (46), capable of detecting light scattered or reflected from the electro-optically active material of the test structure;

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means for providing an alternating current electrical signal (40) having multiple phases (Col. 4 lines 30-35) coupled to at least one conductor (Figure 3 (66)) of a test structure (30), said alternating current signal generated by (40) having multiple phases;

and a processor (lock in amplifier (48)) for processing detection signals from the detectors to locate a defect. (Col. 7 lines 31-41).

Regarding the signal generator (40) and its capability of providing a signal having an alternating current or multiple phases (i.e., "phases" as exemplified by applicant on Page 13 of their specification) and their teaching generally of electrifying their substrate (Col. 4 lines 12-57), and also the applicant's recitation of "a processor for generating" the applicant is reminded that in light of the intended use terms of this claim, the Examiner will interpret these claims in light of the structural elements that are disclosed and not for their intended use as stated after the term "for." The term, "for," is an intended use term. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The Examiner has applied references, which are capable of meeting these functions. A structure, which is capable of providing the intended use, is considered to meet the limitation of intended use recited in a claim to a device or an apparatus.

With regard to claim 27, Charles et al. teach the means for illuminating illuminates the test structure with polarized light via Figure 2's disclosure of a polarizer (34).

With regard to claim 30, Charles et al. teach that the electrical signal is 3 volts (i.e. about 5 volts) (Col. 6 line 29).

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Applicant should note that regarding claims 34 and 36, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

With regard to claims 26, 34, and 36, Charles teaches that the processor (48) is adapted to process the location of the defect (Col. 7 lines 31-41).

Charles et al. does not teach the device that is adapted to acquire images or process those images as recited in claims 26, 34 and 36 or that the signal generator (40) is configured to synchronize phases with image captures of the test structure.

Alumot et al. teach an apparatus for inspecting the surface of chips and wafers for defects also including a first and second phase (i.e., multiple phases) of scanning the incident substrate with a laser (Abstract). The reference teaches camera (110), and multiple image processors (1st (7) and 2nd (11)) in Figure 1 for optically examining with a relatively high spatial resolution the suspected locations for the presence or absence of a defect therein. In light of the intended use recited in this claim, Alumot is therefore interpreted as teaching a processor capable of generating images and processing images as is claimed. Furthermore, in light of the claim and applicant's specification's lack of a structural teaching for their (560) in [0040], [0041], and [0048], Alumot's image capture device is interpreted as being capable of synchronizing phases through the retrieval and comparison of multiple images.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles alongside the optical detection components of Alumot et al. as the Alumot system provides a method and components for inspecting

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semiconductor wafers at relatively high speeds and with a relatively low false alarm rate avoiding losses and production downtime and increasing overall yields (Col. 1 lines 38-50).

2. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. in view of Alumot et al. and in further view of EG&G Princeton applied research product description ("Explore the Lock-in Amplifier, 1983).

The teachings of Charles in view of the Alumot et al. can be seen above.

The pair of references does not teach the particular technical specifications of their lock-in amplifier device that can operate with a frequency range of between 1-100 Hz.

The EG&G product description teaches that a lock-in amplifier has a frequency range limited to 0.1Hz to 200kHz, thus disclosing the 1-100Hz as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles in view of Alumot et al. with the lock-in amplifier taught within the EG&G product manual since it has a low frequency range enabling a broader range of detection. Further the reference teaches that it can measure weak distortion components in the presence of obscuring background noise and directly measure the distortion of a linear system without concern for the spectral purity of the excitation sources which would greatly improve the quality and efficiency of the defect detecting device (EG&G Pg. 1 left side).

Response to Arguments

Applicant's arguments filed 9/23/2010 with respect to claims 26-28, 30 and 34-36 have been considered but they are not persuasive.

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Applicant first points to the recitation in claim 26 of “means for providing an alternating current...” and rebuts their perception of this clause being deemed an intended use recitation. This is not the case. As stated in previous actions, the intended use portions of the claim were limited to the processor recitations and the lack of a structure for the unit (560) which appears to be the structure capable of producing the alternating current. Applicant should note that the specification was inspected for additional detail as authorized by 35 USC 112, 6th paragraph. Specifically, paragraphs [0040], [0041], and [0048] were searched for a structural component of the alternating current generator that would be different from that which was cited as teaching this limitation, i.e., signal generator (40) that was capable of producing an alternating current. No such structure was found besides a reference to piece (560) which is capable of synchronizing via image capture. The applicant is encouraged to without including new matter, amend their claim 26 by including the specific structure required for synchronization and further the applicant is encouraged to include a recitation of “a processor programmed to” or “a processor configured to” in order for the presently recited limitations of the processor to be given additional patentable weight.

Applicant continues by arguing that:

the 2-phase resolution optical examination of Alumot does not teach or is not analogous to the system of claim 26 which is adapted to provide an alternating current of electrical signal which is characterized by multiple phases, nor does Alumot provide any teaching regarding synchronizing phases of the alternating current electrical signal with image captures of the test structures or generating different images of the test structure during different phases of the electrical signal.

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It would appear here that applicant is arguing intended uses of their device. In response to applicant's arguments they are reminded that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. As a result, the above interpretation of Charles' teaching of a signal generator capable of producing an alternating current coupled with Alumot's teaching of their device's capability to capture multiple images (i.e., synchronize phases of multiple images) of the test structure is maintained as teaching the presently recited structural limitations. Furthermore, the motivation to combine these two references exists in Alumot's teaching of a system that provides a method and components for inspecting semiconductor wafers at relatively high speeds and with a relatively low false alarm rate avoiding losses and production downtime and increasing overall yields (Col. 1 lines 38-50).

Applicant's argument regarding claim 35 has already been addressed above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sally A. Sakelaris whose telephone number is 5712726297. The examiner can normally be reached on Monday-Friday 8-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 5712721267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sally A Sakelaris/

Examiner, Art Unit 1773

11/30/2010